

The following requirements must be satisfied and confirmed as prepared no later than 10 business days in advance of installation start.

Applicable to Server Deployment in End-User's Environment:

**1) ETM Management and Database Server -**

The Customer is responsible for providing the host environment for the ETM Management Server and Oracle Database applications.

- Your SecureLogix System Engineer will provide a recommended system configuration based upon your environment.
- The published minimum system requirements for the ETM System may be downloaded from the SecureLogix Knowledge Base at <https://support.securelogix.com/knowledgebase.htm> or downloaded directly using link <https://support.securelogix.com/article.htm?articleid=INS953>

The platform(s) must:

- The ETM Management Server may be a virtual or physical server. The server for Oracle must be in accordance with the Oracle Database license ([www.oracle.com](http://www.oracle.com)).
- Be configured with a compatible operating system (including patches and service packs) as described in SecureLogix documentation.
- Installed in the designated location and configured with the operating system and all relevant patches and security software no later than installation start.
- Interfaced to the data network using static IP address and accessible in real-time by other ETM System components.
- The data network must be configured to allow real-time communications between the ETM Management Server, Oracle Database, ETM System Console clients, and ETM SIP Appliance(s).

For minimum system specifications for a stand-alone Oracle Database server, please refer to the Oracle website at [www.oracle.com](http://www.oracle.com)

**2) Oracle License –**

The Customer will provide the necessary Oracle Relational Database Management System (RDBMS) license and installation media. If the Customer wishes to build the schema and create the Oracle account for the ETM System prior to the scheduled installation date, SecureLogix will provide guidance documentation. If SecureLogix is asked to create the schema, SecureLogix will utilize the SQL scripts provided with the ETM System. Oracle sys and system account credentials will be required.

Supported versions:

- Oracle 11g R2 – Enterprise, Standard, or Express Edition (XE)\*
- Oracle 12c - Enterprise, Standard, or Express Edition (XE)\*

\*Note: The ETM Management Server and Oracle Database applications may be installed on the same or on separate systems, but when Oracle XE is used, the ETM Management Server and Oracle Database must be installed on the same host.

Applicable to Vendor Hosted Server:**3) ETM Management and Database Server -**

SecureLogix will be hosting the ETM Management and Database Server.

For All Deployments:**4) ETM System Console Client -**

The ETM System Console application is the client GUI that connects to the ETM Server to monitor and control the entire ETM System. All security, management, and real-time visibility functions are available via this client. The client includes tools for Appliance Application and Server administration, log review, call monitoring, viewing of real-time alerts, and user account configuration. All security, management, policy enforcement, and real-time visibility functions are accessed via this client.

By default, the client is installed with the ETM Management Server. The client application may also be installed on any number of computers within the Customer's network to enable administrators and users to access the ETM Management Server. The minimum system requirements for the installation of the client application is as follows:

- The ETM System Console (ESC) client is installed as an application. Sufficient privileges to install and to read\write\execute all files in its installation directory is required.
- Computer must be interfaced to the data network and accessible to the ETM Management Server
- Computer must be available with the proper credentials during the time the project installation is taking place
- The published minimum system requirements for the ETM System may be downloaded from the SecureLogix Knowledge Base at <https://support.securelogix.com/knowledgebase.htm> or downloaded directly using link <https://support.securelogix.com/article.htm?articleid=INS953>

Applicable to ETM SIP Appliance/Application Deployments:**5) SIP Network Requirements –**

TTU (test and turn up) of the SIP trunks must be completed prior to scheduling the ETM System installation (e.g. circuits must be active through the SBC and PBX (session manager), and at minimum, capable of passing test call traffic). It is strongly recommended the full environment be minimally tested prior to the introduction of the ETM System to verify stability.

- a. Customers are asked to provide a simple network diagram of their SIP environment to show key voice elements and call flow. This will aid with the ETM System installation planning.
- b. Please inform SecureLogix if you are using URIs instead of phone numbers.
- c. The ETM SIP Appliance/Application acts as a "SIP proxy". It does not perform routing.
- d. The ETM SIP Appliance/Application will be virtually inline on the SIP signaling path (media is not anchored by the ETM SIP Appliance/Application). It is recommended the Customer configure their SBC and PBX (session manager) be configured as follows:
  - Primary route – SBC and PBX logically direct all SIP traffic through the ETM SIP Appliance application.
  - Secondary "bypass" route – SBC and PBX communicate directly. The ETM SIP Appliance is logically taken out of the SIP path.
- e. Please notify SecureLogix if your network is configured as "high availability (HA)" with multiple sites or SBCs for redundancy.

## 6) ETM SIP Appliance Physical Requirements –

Site	Chassis	Qty Devices	Inches Req. for this Qty	Units (U) Req. for this Qty
Site #1	ETM SIP Appliance	1	1.75"	1
Site #2	ETM SIP Appliance	1	1.75"	1

- Dell ReadyRails have been provided for the server. Any additional adapters or modifications are the responsibility of the Customer.
- Customer is responsible for performing all physical installation tasks and providing installation materials (e.g. cabling).

## 7) ETM SIP Appliance Power Requirements –

Site	Chassis	Qty Devices	Outlets for this Qty	Total Amps (A) for this Qty
Site #1	ETM SIP Appliance	1	2 (redundant power supply)	15A
Site #2	ETM SIP Appliance	1	2 (redundant power supply)	15A

Applicable to ETM UTA Appliance/Application Deployments:

## 8) Cisco Router Requirements –

- The ETM UTA Appliance software supports the Cisco ASR family of routers in addition to the ISR G2 family when the appropriate version of IOS supporting the API is used (models supported are 29xx, 39xx, 43xx, and 44xx).

Router Family	Minimum IOS Version*
ASR	XE3.8
ISR G2	15.2.(4)M6

\*Although these are the minimum versions required to support the API embedded within the Cisco IOS, SecureLogix recommends using the most recent IOS release possible in order to take advantage of available improvements and bug fixes.

- The Cisco router(s) must be installed, licensed, and integrated with the Customer's network. TTU of all voice circuits must be completed (e.g. circuits must be active through the router, and at minimum, capable of passing test call traffic), final dial peers defined, and the environment minimally tested to verify stability.
  - SIP or H.323 protocol must be used between the CUBE and the Cisco Call Manager in order for the ETM System to be compatible with the Cisco API. MGCP is not supported.
  - Dial peers with defined session targets are requested. If server groups are being used or are preferred, please inform SecureLogix prior to installation. Note - There is evidence the Cisco API does not correctly process information when server groups are used with certain versions of Cisco IOS. Missing or incorrect information from the Cisco API will hinder the functionality of the ETM UTA Application.
  - Please inform SecureLogix if you are using URIs instead of phone numbers.
  - Please inform SecureLogix if you are exercising Cisco survivability scripting (VXML or TCL).

- c. The Customer will configure the Cisco API on each router to communicate to the ETM UTA Appliance software.
  - i) The API should not be activated until the final dial peers are defined.
  - ii) Please identify all circuits that are passing through the router to be monitored by ETM UTA Appliance software. This may be accomplished by providing output of the running config or "show tech" command on each router.
  - iii) The API may be confirmed as activated by providing output of the running config or "show tech" command after the API configuration changes have been made.

## 9) ETM UTA Appliance Physical Requirements –

Site	Chassis	Qty Devices	Inches Req. for this Qty	Units (U) Req. for this Qty
Site #1	ETM UTA Appliance	1	1.75"	1
Site #2	ETM ITA Appliance	1	1.75"	1

- Dell ReadyRails have been provided for the server. Any additional adapters or modifications are the responsibility of the Customer.
- Customer is responsible for performing all physical installation tasks and providing installation materials (e.g. cabling).

## 10) ETM UTA Appliance Power Requirements –

Site	Chassis	Qty Devices	Outlets for this Qty	Total Amps (A) for this Qty
Site #1	ETM UTA Appliance	1	2 (redundant power supply)	15A
Site #2	ETM UTA Appliance	1	2 (redundant power supply)	15A

## 11) ETM UTA Application Installation and Initial Configuration –

- a. There will be one (1) ETM UTA software instance for each Cisco router\gateway\CUBE to be monitored.
- b. For proper interaction between a Cisco router\gateway\CUBE and its paired ETM UTA application instance, the round-trip latency should be less than 250 ms. Any API exchange taking longer than this to complete may hinder the ability of the ETM System to monitor and execute policy, but calls will progress normally.
- c. The Customer will be asked to load and turn on the provided OVA file into their prepared ESXi environment(s).
  - If this task is to be performed by SecureLogix instead, a SFTP server is required within the Customer's network and must be routable to the designated ESXi management/host interface IP address. SFTP is used to load the software onto the ESXi server. Customer will provide SecureLogix with credentials to the SFTP server and to the ESXi host with sufficient privileges to perform the above task. VMware Hypervisor vSphere client must be installed on any Windows-based desktop or server computer within the Customer's data network that can reach the ESXi management/server host interface IP on the server hosting the ETM UTA application instance(s).

- d. SSH client application, such as putty, must be available on a computer within the Customer's network (the system supporting the ETM Management Server is recommended for this purpose). SSH requests must be permitted to the ETM UTA instances. This is required to access the ETM UTA Appliance software instance(s) for initial configuration.

## 10) ETM UTA Application Host Environment -

Customer is providing the Virtual Machine ("VM") server(s) on which the ETM UTA Appliance software will be installed.

Site(s)	ETM Appliance Software	Total Qty Instances at Site
Site #1	ETM UTA	1
Site #2	ETM UTA	1

At minimum, each instance will require the following hardware specifications:

- 2 cores, 2.5 GHz or greater recommended
- 4 GB RAM
- 60 GB HDD required for each ETM UTA instance (delivered as an OVA of a Linux environment)
- VMware Hypervisor/ESXi 5.x or higher

### Applicable to ETM TDM Appliance Deployments:

## 11) Telco Requirements –

TTU (test and turn up) of the TDM (e.g. PRI or T1-CAS) spans must be completed prior to scheduling the ETM System installation (e.g. circuits must be active through the PBX, and at minimum, capable of passing test call traffic). It is strongly recommended the full environment be minimally tested prior to the introduction of the ETM System to verify stability.

- f. Customers are asked to provide a simple network diagram of their telco/voice environment to show key voice elements and call flow. This will aid with the ETM System installation planning.
- a. Standard, commercial off the shelf, CAT5 or CAT5e patch cables must be used for the telco connections to the ETM Appliances (e.g. to the ETM Appliances' DTI Modules). Customer is expected to provide, run, and connect all cabling in support of the installation.
- b. The ETM Appliance will be physically inline on each digital span to be monitored. It will be located on the provider's side of the Customer's PBX and south of the provider's demarcation point (commonly a SmartJack or CSU).
- c. Two (2) cabling connections will be required for each digital span (e.g. PRI span) that will be monitored.
- The first will be from the provider side to the ETM Appliance. The provider side may be a CSU, SmartJack, extended demark via patch panel, etc.
  - The second will be from the ETM Appliance to the PBX device. The PBX device may be an actual PBX or a gateway. A patch panel may be used to extend the PBX connection point closer to the ETM Appliance.
- d. Identify the following for all circuits to be interfaced with ETM Appliances:
- Circuit identification
  - Technical characteristics
    - Coding (B8ZS, AMI, ZCS, etc.)
    - Signaling (Loop, immediate, wink, ground, etc.)

- Framing (SF, ESF, DF, etc.)
  - Protocol Variant (NI2, 4ESS, 5ESS, DMS-100, etc.)
  - Provisioning (caller ID, DNIS, ANI, etc.)
  - Interface IDs for primary and backup NFAS groups and their members
- e. The ETM System is capable of enforcing policy based on the source telephone number of the call. The ETM System will also log source numbers in its database. Both of these features, however, can only be implemented if source number information is available to the ETM System. Most commonly, the appliance will capture the source number from in-band ANI (on CAS T1 circuits) or D-channel Q.931 messages on ISDN PRI circuits. In cases where source numbers are not available on the monitored circuit, the ETM System can extract source number information from one or more PBX CDR/SMDR data ports. To utilize this feature, the serial data port must be connected to an ETM Appliance and configured for "per-call" (as opposed to cached) reporting. The CDR/SMDR format must provide the following parameters; call start time (or end time), destination number and call duration. This proposal assumes one of the above-mentioned options will be available for each span; otherwise, call source information will not be available. The customer will provide an appropriate PBX technician to provide and configure the necessary SMDR port on the date SMDR connectivity is scheduled.
- f. In order for the ETM System to flag calls as being local or long distance, Customer's local dialing environment must be described in a dial plan. Customer must provide a copy of their Local Exchange dial plan for each scheduled facility no later than 10 days prior to installation start. This can be printed from the tables in your PBX/switch, saved as a text file, obtained from a local service provider or found in the local telephone directory. Supplier will accept dial plan data in electronic or paper formats.
- g. International numbers - During the initial system configuration, phone numbers will be formatted for policy processing. International numbers not of North American format will appear as one sequence (for example, a number in France will appear in the ETM System as 33()144419900). Custom formatting is not part of the standard installation but can be provided as part of an expanded level of effort.

## 12) ETM Appliance Physical Requirements –

- a. For each ETM 3200 Appliance, 3.5 inches (2U) of space in a standard 19" rack (2 post mount) is required.
- b. For each ETM 2100 Appliance, 1.75 inches (1U) of space in a standard 19" rack (2 post mount) is required.
- c. For each ETM 1090 or ETM 1024 Appliance, 1.75 inches (1U) of space in a standard 19" rack (2 post mount) is required.
- d. The Customer is responsible for providing rack adapters if the ETM Appliances are to be installed in other than a standard 19" rack (e.g. a 23" rack).

Site	Chassis	Qty Devices	Inches Req. for this Qty	Units (U) Req. for this Qty
Site #1	ETM Appliance	1	1.75"	1
Site #2	ETM Appliance	1	1.75"	1

## 13) ETM Appliance Power Requirements –

- a. For each ETM Appliance, there must be one (1) NEMA 5-15, 110 VAC outlet within six (6) feet of the Appliance's installation location.



- b. The ETM 3200 Appliance consumes a maximum of 1.55 amps AC per unit (under full load).
- c. The ETM 2100 Appliance consumes a maximum of 0.5 amps AC per unit (under full load).
- d. The ETM 1090 or ETM 1024 Appliance consumes a maximum of 0.2 amps AC per unit (under full load).

Site	Chassis	Qty Devices	Outlets for this Qty	Total Amps (A) for this Qty
Site #1	ETM Appliance	1	1	0.5
Site #2	ETM Appliance	1	1	0.2

#### For All Deployments:

#### **14) ETM System Network Requirements –**

The following are the data network requirements for the ETM System implementation.

##### ETM Management Server

- a. One (1) static IP address with minimum of 100Mbps full duplex connection.
- b. The data network must be configured to permit real-time communications between the ETM Management Server and the Oracle Database, ETM Appliances, and ETM System Console clients.

##### Oracle Database

- c. If the Oracle Database will be installed on a separate server from the ETM Management Server application, one (1) static IP address with minimum of 100Mbps full duplex connection.
- d. The data network must be configured to permit real-time communications between itself and the ETM Management Server application.

##### ETM SIP Appliance

- e. For each ETM Appliance, a minimum of three (3) Ethernet appearance and three (3) static IP address are required:
  - ETH0 – ESXi Management
  - ETH1 – ETM SIP Application
  - iDRAC – dedicated lights out to support hardware warranty
- f. Customer will provide and connect cabling from Ethernet appearance to the ETM Appliances.
  - CAT5e or CAT6 patch cables are supported.
- g. Switch port should be configured for either 1000 or 100 Mbps, full duplex.
- h. ETM Appliances must be permitted real-time communications with the ETM Management Server.
- i. ETM Appliances must be permitted real-time communications with the designated SIP network devices.

##### ETM SIP Application

- j. For each ETM Application, a minimum of one (1) Ethernet appearance and one (1) static IP address is required. An optional Ethernet appearance and static IP address may be assigned to separate SIP signaling traffic from the application (voice network may be on a separate VLAN than application/management).
  - ETH0 – ETM SIP Application
  - ETH1 – Optional dedicated interface for SIP signaling

- k. Customer will provide and connect cabling from Ethernet appearance to the ETM Application(s).
  - CAT5e or CAT6 patch cables are supported.
- l. Switch port should be configured for either 1000 or 100 Mbps, full duplex.
- m. ETM Applications must be permitted real-time communications with the ETM Management Server.
  - a. ETM Applications must be permitted real-time communications with the designated SIP network devices.

#### ETM UTA Appliance

- n. For each ETM Appliance, a minimum of three (3) Ethernet appearance and three (3) static IP address are required:
  - ETH0 – ESXi Management
  - ETH1 – ETM UTA Application
  - iDRAC – dedicated lights out to support hardware warranty
- o. Customer will provide and connect cabling from Ethernet appearance to the ETM Appliances.
  - CAT5e or CAT6 patch cables are supported.
- p. Switch port should be configured for either 1000 or 100 Mbps, full duplex.
- q. ETM Appliances must be permitted real-time communications with the ETM Management Server.
  - a. ETM Appliances must be permitted real-time communications with the designated Cisco CUBE/router.

#### ETM UTA Application

- r. For each ETM Application, a minimum of one (1) Ethernet appearance and one (1) static IP address is required. An optional Ethernet appearance and static IP address may be assigned to separate Cisco API traffic from the application (voice network may be on a separate VLAN than application/management).
  - ETH0 – ETM UTA Application
  - ETH1 – Optional dedicated interface for communications with Cisco CUBE/router
- s. Customer will provide and connect cabling from Ethernet appearance to the ETM Application(s).
  - CAT5e or CAT6 patch cables are supported.
- t. Switch port should be configured for either 1000 or 100 Mbps, full duplex.
- u. ETM Applications must be permitted real-time communications with the ETM Management Server.
  - a. ETM Applications must be permitted real-time communications with the designated SIP network devices.

#### ETM Appliance(s)

- v. For each Controller Module in an ETM 3200 or ETM 2100 chassis, one (1) static IP address and one (1) physical 100Mbps full duplex connection is required.
- w. For each ETM 1090 or ETM 1024 Appliance, one (1) static IP address and one (1) physical 100Mbps full duplex connection is required.
- x. CAT5e or CAT6 patch cables may be used to connect to the ETM Appliance's Ethernet interface.
  - a. Customer is expected to provide, run, and connect all cabling in support of the installation.
  - b. Each ETM Appliance must have real-time communications with the ETM Management Server.



**15) Installation and Test Support –**

The Customer will provide the following support:

- a. For ETM SIP and ETM UTA deployments, a SSH client application, such as putty, must be available on a computer within the Customer's network (the system supporting the ETM Management Server is recommended for this purpose). SSH requests must be permitted to the ETM Appliance(s)/Application instance(s). This is required for initial configuration.
- b. For ETM SIP and ETM UTA deployments, a current version of VMware vSphere Client application must be available on a computer within the Customer's network (the system supporting the ETM Management Server is recommended for this purpose). The client must be permitted to communicate with the ETM SIP Appliance(s). This is required to access the ETM SIP Appliance(s) for initial configuration.
- c. The Customer will provide the business and non-business hour timeframes the installation team will have access to the above identified systems no later than 10 business days prior to installation start.
- d. If the ETM System components (Server, Clients, or Appliances) will communicate through a data firewall, a representative from the Customer's information systems group must participate in the event where that network communications are scheduled to be established with the ETM System. The individual must be able to configure and troubleshoot the Customer's networking equipment as needed to allow communications.
- e. Appropriate site telco engineer(s) must participate in the event where the ETM Appliance(s)/Applications are scheduled to be integrated with the Customer's voice environment. The engineer must be capable of operating the appropriate voice network devices to monitor performance, control traffic, and troubleshoot problems encountered.

**16) Scope of Work Revisions –**

Customer acknowledges that SecureLogix's scope of work and quotation of fees for Services are based upon its mutual understanding with Customer that Customer will deliver the above list of items and assistance. If SecureLogix determines that Customer has failed to deliver any portion of the above list of items and assistance, SecureLogix will notify the Customer's Point of Contact and mutually negotiate a written revision to original scope of work and related fees.